Michelle Blair, Student Participant
Ogden High School
Ogden, IA

The Future of Biofuels in Mexico

Introduction

What are biofuels and how can specific countries like Mexico benefit from the technological advances in biofuels? This question leads to the many benefits that come from this newly developed technology. Some of the specific benefits range from increased employment to more environmentally safe fuel for our vehicles. However, many are concerned that we will deplete our supply of raw materials used in producing the particular biofuels. Also, some countries might not gain the same sorts of benefits just because there is less foreign investment in their agricultural department.

As a result of living in rural Iowa, it is almost impossible not to notice the impact that biofuels are having on our society today. All of the farmers in Iowa are directly influenced by the increase of ethanol plants in Iowa. It is very common to see ethanol plants being built all over our state. These ethanol plants produce some benefits like helping to create employment in Iowa. Another place that every Iowan is exposed to the advances in biofuels is when they stop at the pump to fill up with fuel. You are given the choice of various types of fuel to fill up with. More and more people are beginning to use the fuel that contains the most ethanol because it is cheaper and because it is better for the environment. Sometimes, people in Iowa forget that the issue of biofuels affects everyone worldwide.

Many people are unaware of what biofuels really are. Biofuels are fuels composed of or produced from biological raw materials. Biofuel can also be defined as a solid, liquid, or gas fuel that comes from a biomass, a material that came from a recently living organism. Various countries use different biomasses to make use of the resources or crops that the country produces. For example, the United States uses mostly corn and soybeans to create the biofuels that we have today. Other countries use sugarcane, wheat, rapeseed, palm oil, or even jatropha to create their biofuels.

The major purpose of biofuels is to create an alternate energy source so that we can cut down on our greenhouse gases. Biofuel technology has the ability to help slow down global warming because it is a more efficient way to create our energy. This technology also has a great impact on the use of fossil fuels. The production of biofuels is intended to greatly decrease the dependency on fossil fuels by over 50% in many countries. As with many technological advances, biofuels has a few negative impacts as well. These specific impacts range from price increases on certain foods to a negative impact on food security in developing countries. Even though these are negative impacts at this time, there are many ways in which we can manage some of these negative impacts in the future.

In order for the technology of biofuel to be implemented in Mexico, it will be very important that information gets distributed to all of the Mexican family farmers. These farmers need to be educated about the results from research in agricultural yield and sustainability. This education will help with providing access to and increasing support for implementing methods from this research. In order to weigh the impacts of biofuels in Mexico, people must be informed about the current typical subsistence family farm in Mexico.

Profile of Current Situation

There are about 15 million households located mainly in the urban areas of Mexico. A survey conducted specifically with farm workers in Mexico showed that over 90% of the farmers lived at least

with their spouse and some of these farmers had larger families as well. The survey pointed out that 60% of the spouses also participated in helping with the farm work. Some of the farmers in Mexico not only live with their immediate family, but many also live with their extended family as well. The average size of a household that lives in extended family situations in Mexico is 6 persons per household. This particular survey pointed out that the average number of children per family was two ("Mexican").

In order to support their families, farmers need to start working at a young age. Many of the Mexican farmers don't get their entire education because they need to step up and help support their families. The average education for an adult is only 7.2 years. Mexico is currently ranked 36th out of 100 in the adult education category. Mexico only spends 5.3% of their GDP on education. In 2006, the National Statistics Institute released a study that showed that the average income in a Mexican household was 30732 pesos or 2800 U.S. dollars. This study showed that the average household income has increased 3.9% since the year 2000 (Harrup).

The diet of most Mexicans has been highly influenced by many of the earlier generations who occupied Mexico. Since very early times, corn has been the basic and most widely used food in the Mexican culture. During the Mayan rule, a Mayan man believed that people were formed by corn and an Aztec poem began by saying "corn is our flesh, our bones, our being, our life." Corn is used to make many foods, but it may be most known for its use in making the tortilla. Even though corn is a very large part of the average Mexican diet, various other foods play vital parts as well. These include squash, beans, chilies, fish, rabbits, sweet potatoes, tomatoes, and many others as well. This is just a brief overview of what the average diet in Mexico may be like.

Furthermore, most of Mexico's farms are very small family farms. Many ejidos, or communal farms, are still present in most of the central and southern states. In these areas, a large majority of peasants are only able to produce enough for their own survival. Since 1992, the family farm size in the northeastern portion of Mexico has begun to change. This change occurred because the government leaders in Mexico wanted to create a way to raise rural productivity and living standards. In order to accomplish this, the government leaders amended the constitution so that people could transfer their property rights of their communal lands to farmers. This allowed for farmers to be able to rent and sell portions of their land so that larger farms could be created.

Mexico is a country that produces a large variety of crops. Mexico ranks number one in the world for producing avocados, onions and chayote, limes and lemons, and safflower seed. They rank second in the world for producing dry fruits, papaya, chilies, and peppers. Some of the other products that Mexico produces include oranges, chicken meat, whole beans, mangoes, asparagus, and corn (3). Mexico produces mostly white corn so that they can reduce the amount of white corn imported from other countries. Mexico produces white corn because this type of corn can be used for human consumption. Hardly any yellow corn is produced in Mexico, Mexico relies on places like the United States to sell them the yellow corn they need to feed their livestock.

In Mexico, there is very little foreign investment in agricultural production. (In contrast, foreign investment in food processing and distribution in Mexico is extremely high.) This lack of interest in foreign investment into the Mexican agriculture production is because of the extremely difficult legal structure of the land system in Mexico. There are five main restrictions or stipulations on land in Mexico: 1) you are only allowed to own a certain amount of land at a time; 2) many non-resident foreigners are prohibited from owning Mexican farm land; 3) communal farms are not allowed to be rented; 4) Mexican farmers are not allowed to participate in corporate farming; and 5) resident foreigners are restricted from owning certain lands due to the Restricted Zone in Mexico. Many of these restrictions make it very hard for foreign investment to occur within the borders of Mexico.

Effects of Biofuels

Since most of the farmers in Mexico only receive a formal education until they reach the seventh grade level, many of these farmers are very uninformed about some of the current agricultural issues. Most likely, these farmers have not been able to devote a lot of their time to learning about some of the recent advancements in the agricultural world. Some of these advancements include genetically modified crops, such as corn or soybeans, as well as the advancement in biofuels. The farmers in Mexico need to be informed and taught about how to use these specific advancements to their advantage.

Currently, the negative impacts of biofuels are harming many of the people in Mexico. An article written by Bart Mongoven on September 13, 2007 discussed a report that was released by the Organization for Economic Cooperation and Development on September 11, 2007. This report was designed to try to deflate support for biofuels in countries like the United States and Europe. One of the reasons why people are becoming skeptical about biofuels is because they are worried about the concept of burning crops for fuel. Many people have noticed that countries like Mexico have had a "tortilla crisis" because more of their white corn is being used to feed their animals instead of being used to make their food. The main reason why Mexican farmers have to use their white corn to feed their animals is because the United States is not selling them the yellow corn that they need at a price that they can afford. This has created a shortage of white corn and a huge price increase on tortillas in Mexico.

Even though this paper has stressed some of the negative aspects of biofuels in Mexico, Biofuels can affect Mexico in many positive ways as well. The first positive impact would be that farmers could make more money. The farmers would be able to make more money because they would be able to produce and sell more of their crops. This can be beneficial to the Mexican farmer in many ways. This will help the farmers be able to better support their families. They will be able to supply more food and be able to pay more for each of their children's education. The second impact is that biofuel companies may decide to locate in Mexico and that would provide the opportunity for many local jobs to be created. Another benefit is that biofuels can be quite easily produced. Biofuel companies are able to use locally grown crops in order to produce the fuel. Another great thing about biofuels is that most of the crops that are used to produce the fuels are renewable resources. This means that farmers are able to grow corn yearly and that helps to keep the supply of corn high enough to be able to use it to make our biofuels.

Proposition

In order for this research to make a difference on the biofuel situation in Mexico, the Mexican government should set aside a certain amount of money specifically designed to teach the Mexican people about biofuels. It would be vitally important to teach all of the Mexican farmers about the technology behind biofuels. First, it would be essential to teach these farmers why the technology of biofuel will benefit them. After the farmers are aware of the benefits that biofuels has to offer, the government can give the farmers a more in-depth look at how they can produce surplus amounts of their crops. This will help the farmers be able to use the limited land that they have in order to produce more crops. The extra crops that they produce will then be able to be used to create that biofuel that is needed. The farmers will want to absorb all of the information that the government is supplying to them because they want to be able to produce as much as they can so that they will make the maximum profit possible. These farmers want to thrive.

After educating the farmers, it would be beneficial to educate the rest of the population of Mexico as well. One of the most efficient ways to educate a large group of people about a certain subject is to

create a set of pamphlets that put forth a lot of information about the technology of biofuels. This type of pamphlet would give the general public a comprehensive idea about what biofuels are and why biofuels are useful in our society today. Since each community in Mexico may play a different part in expanding the use and production of biofuels, it would also be effective to hold small, local meetings. This would give farmers a chance to ask some of their own questions concerning this issue. Small, local meetings would also give people who are highly educated about biofuels a chance to get their ideas and concerns about increasing the use of biofuels out to the specific communities.

With the rest of the money set aside, the government would be able to advertise about the positive influences of biofuels. It would be important to educate the entire population in Mexico so that a majority of the people will become supporters of this industry. People are able to support the industry by becoming consumers. For example, people could start to buy ethanol or biofuel based fuel instead of the regular fuel that most people use today.

Conclusion

We need to change the impact that biofuels are having in Mexico. Presently, a lack of education is only putting Mexican farmers at a disadvantage. This situation will only get worse as the years progress. If the farmers don't become fully educated about the changes that are occurring in the biofuel industry, then they will fall behind other countries. Most of the farmers in Mexico are small farmers and they need to be able to learn how they can most efficiently use their land.

The main way to go about changing the impact of biofuels in Mexico is by educating the people about what biofuels are. It is especially important to educate all of the farmers in Mexico. These farmers need to learn ways in which the technology of biofuels can help themselves, their own country's economy, and others in the world. They need to learn how to increase the biofuel supply and their own income. After giving the farmers the education that they need to be successful, it would be just as important to follow up and teach the rest of the population in Mexico about how biofuels affect each of them. It is important to stress that you might have some negative impacts in the beginning stages of this technology, but in the end, the goal is to have the positive impacts heavily outweigh the negative impacts that were created.

With support from the Mexican government, Mexico can become one of the nations that will heavily thrive because of the biofuel technology. The government must decide to get involved and find effective ways to help educate their people. It will take a few slight changes in the current agricultural system of Mexico and a lot of faith in the technology of biofuels in order to help change the lives of many of the family farmers in Mexico. An education will make all of the difference.

Works Cited

"Agriculture and Foreign Investment in Mexico." Agriculture in Mexico. 8 Sept. 2007 <http://www.mexicolaw.com/Agriculture.htm>.

"Biofuel." Wikipedia. 1 Sept. 2007. 5 Sept. 2007 <http://en.wikipedia.org/wiki/Biofuels>.

"Economy of Mexico." Wikipedia. 22 Sept. 2007. 22 Sept. 2007 <http://en.wikipedia.org/wiki/Economy_of_Mexico#Agriculture_and_food_production>.

Harrup, Anthony. "Average Income of Mexican Households Up 3.9% in Last 5 Years." Easy Bourse. 30 Sept. 2006. 8 Sept. 2007 <http://www.easybourse.com/Website/dynamic/News.php?NewsID=65038&lang=fra&NewsRubrique=2&pageliste=>.

"Latin America and the Caribbean Blog At ODI." 27 Mar. 2007. 13 Sept. 2007 <http://lac.civiblog.org/blog/_archives/2007/3/27/2838904.html>.

"Mexican Education Statistics." Nation Master. 8 Sept. 2007 <http://www.nationmaster.com/country/mx-mexico/edu-education>.

"Spotlight: Agriculture and Environment: Time to Act Globally." FOA. Apr. 2007. 13 Sept. 2007 <http://www.fao.org/AG/magazine/0704sp1.htm>.

"What is Biofuel?" Biofuel Debate. 6 Aug. 2007. 15 Sept. 2007 <http://www.biofueldebate.com/showthread.php?p=6>.